

Applicability and results of surgical treatment of chronic anal fissures in the polyclinic

Surgical treatment of chronic anal fissures

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Abstract

Aim: As a result of the experience gained, it has been revealed that 90% of proctological procedures can be done with local anesthesia on an outpatient basis, patients do not need to stay in the hospital for days and recovery can be followed up on an outpatient basis.

Material and Method: Research cases were operated by a single physician. In the study, 209 outpatients were operated in the outpatient clinic and 6 patients were operated in the general operating room.

Results: In the research, 209 outpatients operated in the outpatient clinic and 6 patients operated in the general operating room were included. Of the patients operated on in the outpatient clinic, 124 were women and 85 were men. The recovery rate was 90.4% and the recurrence rate was 9.6% in those operated in the outpatient clinic.

While the median monetary value of the cases operated on in the outpatient clinic was 429.41 TL (40.89 USD), it was 1373 TL (130.76 USD) in the general operating room group (p 0.002).

Discussion: Performing uncomplicated proctological cases in the local operating room in order to use the general operating room more effectively supports our study in terms of both institutional profitability and surgical treatment results.

Keywords

Outpatient, Chronic Anal Fissure, Lateral Internal Sphincterotomy

DOI: 10.4328/ACAM.21754 Received: 2023-05-11 Accepted: 2023-06-16 Published Online: 2023-06-25 Printed: 2023-07-01 Ann Clin Anal Med 2023;14(7):664-667

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This study was approved by the Ethics Committee of Sakarya University (Date: 2023-05-02, No: E-71522473-050.01.04-241695_141)

Introduction

Anal fissures are ruptures of the anoderm. A lifetime incidence of anal fissures is predicted to be 11%, affects men and women equally, and can be seen at any age [1]. Symptomatically, fissures below six weeks are called acute, and those over six weeks are called chronic anal fissures. Anal fissures cause pain, itching and bleeding. This reduces the quality of life of those suffering from the disease. The exact etiology of primary anal fissures is unknown. The initiating factor is thought to be anoderm trauma due to overstretching, especially from hard or large stools, local irritation from diarrhea, anorectal surgery, and anoreceptive sex [2].

In addition, constipation and hard bowel movements are reported in only 13% of patients with fissures. In most patients with anal fissures, the event that causes the fissures to become chronic is hypertonicity and hypertrophy of the internal anal sphincter as a result of increased resting pressures of the anal canal and internal sphincter [2,3].

Secondary fissures may develop as a result of previous anal surgery, inflammatory bowel disease, granulomatous disorders (for example, tuberculosis, sarcoidosis), infections (for example, human immunodeficiency virus, syphilis), chemotherapy or malignancy [4,5].

Most fissures occur in the posterior midline (90%). Anterior midline fissures constitute approximately 10-25% of fissures detected in women and 1-8% of fissures detected in men. Anterior and posterior midline fissures may occur simultaneously in approximately 3% of cases. Sometimes the fissure sites may be atypically located outside the antero-posterior line. Anterior fissures occur in young female patients who have injury or dysfunction of the external anal sphincter due to childbirth [6]. Although acute anal fissures respond to medical treatment at a high rate, when chronic fissures develop, they are more difficult to heal and respond to conservative treatment on average 50%. [6,7] Therefore, there is a need for the adoption of surgical treatment options.

The increase in oncological and complicated cases causes long waiting times for hospitalizations and delays in treatment. Compared to other proctological cases, surgical treatment of chronic anal fissures is more successful in terms of recovery and patient satisfaction. Modern local anesthetic agents provide serious benefits in practice. Therefore, it seems possible to treat a certain part of proctological diseases on an outpatient basis [8].

The primary purpose of this retrospective study is to report the results of sphincterotomy performed under local anesthesia in outpatient settings in patients with chronic anal fissures. The secondary aim is to compare the results of complicated cases in terms of recurrence and cost, in order not to occupy the general operating room.

Material and Methods

After the approval of Sakarya University Ethics Committee (Date: 02/05/2023; No: E-71522473-050.01.04-241695_141), patients who were operated for chronic anal fissure between January 2018 and March 2023 were retrospectively analyzed. The study patients were operated by a single surgeon. I and II scores of the American Society of Anesthesiologists (ASA) were

preferred. Patients who were within 30-60 minutes of arriving at the hospital on an emergency basis and were psycho-socially ready for local surgery were included.

Patients were operated in the jack-knife position in the outpatient clinic, and in the lithotomy position in the general operating room. During the operation, lateral internal sphincterotomy or controlled sphincterotomy was performed by numbing the fissures first and then the operation field (usually at 9 o'clock position) with prilocaine.

The patients were discharged after thirty minutes of observation after surgery. Controls were made in the first, second and third months. In cases with complicated anal stenosis and a contralateral sphincterotomy, the control of the patients was extended to six months. The patients who were operated on in both operating rooms were asked about their recovery status, recurrence, complications, incontinence, satisfaction, and whether they had any problems, and the data were recorded. The surgery prices of the patients and the savings of the institution (i.e. profitability ratios) were calculated by considering the price application notification of the Ministry of Health of the Republic of Turkey. It is stated in both Turkish liras and American dollars on the basis of international annual exchange rates.

Only chronic anal fissures and atypical chronic anal fissures that caused anal stenosis were included in this study. Acute anal fissures and chronic anal fissures associated with hemorrhoidal disease were excluded.

Statistical analysis

We performed descriptive analyses to provide information on the general characteristics of the study population. The Kolmogorov-Smirnov test was used to evaluate whether the distributions of numerical variables were normal. Accordingly, the Mann-Whitney U test was used to compare the numeric variables between groups. The numeric variables were presented as median (minimum-maximum). Categorical variables were compared using the Chi-Square test. Categorical variables were presented as number and percentage. A p-value <0.05 was considered significant. Analyses were performed using SPSS statistical software (IBM SPSS Statistics, Version 25.0. Armonk, NY: IBM Corp.)

Ethical Approval

Ethics Committee approval for the study was obtained.

Results

Comparisons made in terms of demographic, clinical and cost characteristics of the cases between the group treated in the operating room and the group treated in the outpatient clinic are shown in Table 1.

The research included 209 outpatients operated in the outpatient clinic and 6 patients operated in the general operating room. One hundred twenty-four of the patients who were operated on in the outpatient clinic were women and 85 were men. The mean age was 38 years in the outpatient clinic and 43 years in the inpatients. There was no significant difference between the exposure times (p 0.539).

In terms of fissure types, the typical ones were mostly performed in the outpatient clinic, while the atypical ones were performed in the general operating room. The difference was found to be statistically significant (p 0.015).

Table 1. Comparisons of demographic, clinical and cost characteristics of the cases between the group treated in the operating room and the group treated in the outpatient clinic.

| | Outpatient n=209 | Inpatient n=6 | P- value | |
|---------------------------------|-------------------------|--------------------|-------------|---------|
| Age | 38 (17-97) | 43 (32-53) | 0.338* | |
| Gender | Female | 124 (59.3%) | 2 (33.3%) | 0.234** |
| | Male | 85 (40.7%) | 4 (66.7%) | |
| Account (Turkish Lira) | 429.41 (313.90-1002.47) | 1373 (357.85-1373) | 0.002* | |
| Duration of the disease (Month) | 12 (4-144) | 7 (4-24) | 0.539* | |
| Follow up (Month) | 30 (1-63) | 11 (2-55) | 0.105* | |
| Fissure Type | Typical | 190 (90.9%) | 3 (50%) | 0.015** |
| | Atypical | 19 (9.1%) | 3 (50%) | |
| Bleeding | No | 65 (31.1%) | 1 (16.7%) | 0.669** |
| | Yes | 144 (68.9%) | 5 (83.3%) | |
| Pain | No | 15 (7.2%) | 0 (0%) | 1.0** |
| | Yes | 194 (92.8%) | 6 (100%) | |
| Itching | No | 174 (83.3%) | 5 (83.3%) | 1.0** |
| | Yes | 35 (16.7%) | 1 (16.7%) | |
| Surgery | Sphincterotomy | 183 (87.6%) | 1 (16.7%) | <001** |
| | Partial Sphincterotomy | 26 (12.4%) | 1 (16.7%) | |
| | Flep | 0 (0%) | 4 (66.7%) | |
| Recurrence | No | 189 (90.4%) | 2 (33.3%) | 0.002** |
| | Yes | 20 (9.6%) | 4 (66.7%) | |
| Etiology | Constipation | 190 (90.9%) | 5 (83.3%) | <0.01** |
| | Birth | 19 (9.1%) | 0(0%) | |
| | Diarrhea | 0 (0%) | 1 (16.7%) | |

* Mann-Whitney U test, ** Chi-Square test

In terms of etiology, constipation in patients operated on in the outpatient clinic and diarrhea in patients operated on in the general operating room had a significant difference ($p < 0.01$)

There was no significant difference in terms of pain, bleeding and itching in both groups ($p = 0.669$, $p = 1.0$, $p = 1.0$). The recovery rate was 90.4% and the recurrence rate was 9.6% in those operated in the outpatient clinic.

In the general operating room group (4/6), 66.7% were operated mostly in cases of recurrence, delayed recovery, or anal stenosis. It was observed that more complicated cases were performed in the general operating room, making a significant difference compared to those performed in the outpatient clinic ($p = 0.002$). While the mean follow-up period of the patients operated in the outpatient clinic was 30 months, the follow-up period of the patients operated in the general operating room was 11 months. No significant difference was found between them ($p = 0.105$).

The median monetary value of the cases operated on in the outpatient clinic was 429.41 TL (313.90-1002.47 TL), 40.89 USD, while it was 1373 TL (357.85-1373 TL) and 130.76 USD in the general operating room group ($p = 0.002$).

The median cost of the materials used was 26 TL (23-29 TL) (2.47 USD) in the outpatient clinic, and 923 TL (864-982 TL) (87.90 USD) for the materials, surgical set and anesthesia application in the general operating room. Relatively, the hospital's profitability rates were higher in the outpatient clinic. Fecal contamination and minimal incontinence were observed in one patient in the general operating room group. In the

outpatient group, one patient reported fecal contamination and five patients reported gas incontinence (6/209) 2.8%. At the 6th month of follow-ups, minimal incontinence complaints were absent in both groups. While patient satisfaction rates were 91% in the local anesthesia group in the early period, the satisfaction with recovery increased to 98% at the end of the third month. In the early period, the highest rate of dissatisfaction was associated with pain.

Discussion

Experiences have shown that 90% of proctological diseases can be performed on an outpatient basis with local anesthesia, with anal diseases there is no need to stay in the hospital for days, and recovery can be followed up on an outpatient basis [9].

In chronic anal fissures, the most effective surgical treatment of choice is lateral internal sphincterotomy (LIS). It maintains its gold standard feature. It is offered as a first-line treatment option according to the application parameters of the American Society of Colon and Rectal Surgeons. However, complete or partial closure of the sphincter predisposes to sphincter dysfunction, which may manifest as gas, fluid, or fecal incontinence in varying degrees [10].

Due to concerns about impaired continence after sphincterotomy, several modifications of the LIS have been developed over the last two decades and terms such as "customized" or "controlled" LIS have been introduced. The extent of sphincterotomy is determined as the percentage of sphincter division or the length of the distance above or below the dentate line. As might be expected, more sphincter division is associated with a higher incidence of impaired continence [11].

In our study, prilocaine was injected into the fissure line first in the local operating room. After the patient's pain was relieved, complete relaxation of the anus was achieved. With resolution of anal spasm, fissure depth, type and number were observed. The amount of sphincterotomy was adjusted by obtaining preliminary information about the performance of the anus. We adopt that with careful patient selection, the incontinence rate will decrease further. Numerous studies have been conducted to examine the effect of this on outcomes.

In a 2013 meta-analysis by Garg et al. [10], they showed that the overall rate of continence disorder may be as high as 5-14%, despite some recent studies. Al-Thoubaita et al. [12] found a low incontinence rate of 0.4% in their study.

Davies et al. [13], focusing specifically on postoperative incontinence and investigating long-term outcomes after lateral anal sphincterotomy, reported a success rate of 92% in postoperative fissure healing, while two (5.6%) patients reported prolonged objective and symptomatic incontinence.

In our study, fecal contamination and minimal incontinence were observed in one patient in the general operating room group. In the outpatient group, two patients reported fecal contamination and five patients reported gas incontinence (7/209) 0.03%. At the 6th month follow-up, there were no minimal incontinence complaints in both groups. While patient satisfaction rates were 91% in the local anesthesia group in the early period, the satisfaction with recovery increased to 98% at the end of the third month. In the early period, the highest rate of dissatisfaction was associated with pain.

Sphincterotomy can be done with an open or closed technique. An open LIS is defined by Eisenhammer, a closed LIS by Notoras. It is performed by entering the intersphincteric region with a small incision from the anoderm edge and suspending the internal sphincter. In controlled sphincterotomy, the distal part of the sphincter is partially cut with a scalpel No. 11 based on the perianal skin.

Cho et al. [11] recommended adjusting the exact length of the sphincterotomy to the length of the anal fissure. Controlled lateral sphincterotomy technique was observed to protect the anal sphincter more.

Mentese et al. [14] in a randomized, prospective study compared the use of anal calibrators. They reported that controlled sphincterotomy provided faster relief in pain, and significantly lower early postoperative continence impairment and treatment failure.

In our study, controlled sphincterotomy was performed in 26 (12.4%) patients in the outpatient group and in 1 (16.7%) patient in the general operating room group. Considering the relaxation capacity of the anus, it was left for the second session or contralateral sphincterotomy could be performed if necessary.

In 2015, Liang et al [15] stated that the healing rate of the fissure was 98% in the treatment of recurrent chronic anal fissure after surgical treatment. They presented the results of a prospective study designed to indicate that only 4% of cases required a contralateral, lateral internal sphincterotomy. They showed that it can be applied in the treatment of recurrent chronic fissures with minimal risk of incontinence.

In our case series, contralateral sphincterotomy was performed in 0.028% of outpatients (6/209) because their anal fissures did not heal. All recovered in the third month of follow-up.

We observed that the amount of savings achieved by the institution in terms of local currency (TL) and foreign currency (USD) was medianly significant in the group treated in the outpatient clinic compared to the group treated in the operating room. According to the price application communiqué of the Ministry of Health of the Republic of Turkey, the median price of anal fissure surgery for five years (considering the international average exchange rate) was 429.41 TL, (313.90-1002.47 TL) (40.89 USD). In the general operating room group, it was 1373 TL (357.85-1373 TL) (130.76 USD).

The average institutional profitability per case is 450 TL (42.85 USD) in the operating room, and 403.41 TL (38.42 USD) in the outpatient clinics.

These results concluded that it is more reasonable to perform surgery in the outpatient clinic, given the workload of the operating room.

In the study by Nahas et al. [16], although the price policies for surgery differ from country to country, the cost of surgery for a one-day hospitalized patient is USD 570.00 and for outpatient treatment USD 390.00.

Conclusion

Today, with the excellent analgesia provided by local anesthetics in outpatients, its applicability and success rates have increased a lot. The increase in complicated cases and malignant patients has led to the need to allocate a general operating room for these cases. To use the general operating room more effectively,

uncomplicated proctological cases should be performed in the local operating room. This study supports the positive outcome of outpatient surgical treatment.

Scientific Responsibility Statement

The authors declare that they are responsible for the article's scientific content including study design, data collection, analysis and interpretation, writing, some of the main line, or all of the preparation and scientific review of the contents and approval of the final version of the article.

Animal and human rights statement

All procedures performed in this study were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards. No animal or human studies were carried out by the authors for this article.

Funding: None

Conflict of interest

None of the authors received any type of financial support that could be considered potential conflict of interest regarding the manuscript or its submission.

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How to cite this article:

Hakan Demir. Applicability and results of surgical treatment of chronic anal fissures in the polyclinic. *Ann Clin Anal Med* 2023;14(7):664-667

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